

REMARKS

Claims 17-28 and 35-48 are pending. By the present Amendment, claims 17, 18, 23, 25-28, 35, 39, and 45-48 are amended, and new claim 49 is added. Upon entry of this Amendment, there will be twenty-six (26) total claims, of which five (5) are independent (claims 17, 25, 35, 45, and 49). This Amendment is being filed together with the necessary extension of time fees. No other fees are believed to be necessary. If, however, the Office determines that other fees are required, then the Office is requested to charge such other fees to deposit account 061910.

In the Office Action mailed April 6, 2010, the Examiner withdrew the indications of allowability that had been presented in the previous two Office Actions, and new art was cited. The undersigned thanks Examiner Hogan for the courtesy of the in-person Examiner interview held on May 14, 2010. The contents of the Examiner's Interview Summary is accurate insofar as no claims were discussed, no prior art was discussed, no exhibits were shown, and no agreement was reached. Applicant's counsel requested an overview on the change of direction after receiving two initial Office Actions indicating allowability. The Examiner indicated that new art was being cited and would need to be overcome. Applicant agreed to address the new art, and this is being done in the present Amendment.

In the latest Office Action, claims 17-28 and 35-48 were rejected, and claim 39 was objected to. Claims 17-28, 35-43, and 45-58 were rejected under 35 U.S.C. 103(a) as being unpatentable over Richman U.S. Patent No. 6,364,010 in view of Jonsson U.S. Patent No. 5,950,715. Applicant respectfully traverses these rejections in view of the remarks below and the present amendments. Before the current rejections are addressed, it is appropriate to consider the background of the invention.

Background of the Invention

The invention provides a specific washer fluid heater system, which harnesses energy lost in the form of heat from the vehicle's engine. The washer fluid heater system uses a heat exchanger that is installed into the engine's coolant system. Washer fluid delivered to the windshield is heated using a heating system that requires no electricity. The temperature of the washer fluid is increased by passing hot engine coolant fluid through heat exchange elements.

Installation of the washer fluid heater system does not require modification to the vehicle, and is activated automatically when the vehicle's driver engages the factory installed windshield wiper system. Since the heat exchanger can increase the temperature of washer fluid to temperatures close to those of the hot engine coolant, the washer fluid heating system can melt snow, ice, and frozen matter on the vehicle window and wipers, and can also help dissolve and remove difficult window debris such as road grime and insects.

The present washer fluid heating system is considerably less expensive than other systems on the market, can be installed quickly using only hand tools, and does not compromise the integrity of the vehicle's electric system. For example, it does not draw off battery power, so it does not have the chance of creating a dead battery if the system is misused or malfunctions. The invention can also be readily disassembled and cleaned for maintenance. Thus, the invention provides a simple, practical system for heating washer fluid.

The Office's latest rejections all rely upon Richman as the primary reference. Richman's goal is to provide a system that can maintain the temperature of the heated washer fluid at a predetermined difference over the temperature of the windshield. *See, e.g.*, Richman, abstract. To accomplish this goal, Richman provides a system that is considerably more complicated than, and has significant drawbacks compared to, Applicant's system.

In Richman, two separate washer fluid flow paths emanate from the washer fluid reservoir 106: a first path leads to the fluid heater 200, a second path leads to a mixing valve 202. The fluid that goes to the heater 200 is heated and then delivered to the mixing valve 202, where the heated washer fluid is combined with ambient temperature washer fluid from the reservoir 106. Temperature sensors are provided on the windshield surface and in the washer fluid line leading to the spray nozzles 108. *See Richman, column 2, lines 49-53.* A separate controller (not shown, but discussed at column 2, lines 53-56) is provided to receive the resulting temperature readings and to adjust the mixing valve so it combines the amounts of hot and cold washer fluid necessary to obtain the desired temperature differential for the washer fluid sprayed onto the windshield.

Figure 2 of Richman provides an overview of the system. Richman's system clearly is more complicated than Applicant's, and it has significant drawbacks. For example, Richman's system has two separate flow paths leading away from the washer fluid reservoir 106. One flow

path leads to the fluid heater 200 and then on to the mixing valve 202, while a second flow path leads directly to the mixing valve. In order to maintain the temperature differential required by Richman, a controller is provided to process the temperature data measured by the temperature sensors and to control the mixing valve 202 accordingly. The controller requires electricity, which if drawn off the vehicle's battery, may create potential for a dead battery if the system is misused or malfunctions.

The Office Action suggests it would have been obvious to replace Richman's fluid heater 200 with Jonsson's heat exchanger. While Applicant respectfully disagrees that this substitution would have been obvious or would obtain all the features of the rejected claims, the present amendments focus the claims on embodiments that clearly would not result from the proposed combination of Richman and Jonsson.

Independent claims 17 and 25 are hereby amended to require that the claimed system have only a single washer fluid flow path extending between the washer fluid reservoir 70 and the claimed nozzle 71. Reference is made to Figure 11 of Applicant's specification. The amendments to claims 17 and 25 plainly differentiate these claims from the proposed combination of Richman and Jonsson. The foundation of Richman's system is its mixing valve control system, which makes it possible to maintain the desired temperature differential between the windshield and the sprayed washer fluid. The dual flow paths in Richman are critical to Richman's system; eliminating either of those flow paths would destroy an intended function of Richman's system. Specifically, the output temperature of the resulting spray could not be adjusted by mixing different relative amounts of the heated and ambient temperature washer fluid. It is well established that a proposed modification to a prior art device cannot be considered to have been obvious if that modification would destroy an intended function of the device. In re Gordon, 733 F.2d 900 (Fed. Cir. 1984).

The amendments to claims 17 and 25 (requiring that only a single flow path extends between the washer fluid reservoir and the nozzle) give these claims a detailed, concrete focus on the simple, practical structure in preferred embodiments of Applicant's invention, which in contrast to many prior art systems, allows Applicant's system to be a commercially feasible retrofit for existing vehicles. Thus, Applicant respectfully submits that amended independent claims 17 and 25 define patentably over the proposed combination of Richman and Jonsson.

Dependent claims 18-24 (based on claim 17) and 26-28 (based on claim 25) are, accordingly, believed to be allowable as well.

Independent claims 35 and 45 are hereby amended to specify that the claimed washer fluid heater system is configured to heat washer fluid delivered to the vehicle's windshield without drawing off battery power from the motor vehicle or otherwise using electricity. This is not the case with Richman's. Richman requires a controller to receive temperature readings from the sensors and to adjust operation of the mixing valve 202 so as to maintain the predetermined temperature differential. Since Richman's controller requires electricity, even if Jonsson's heat exchanger were substituted for Richman's fluid heater 200, the resulting system would not heat washer fluid delivered to the vehicle's windshield without drawing off battery power from the motor vehicle or otherwise using electricity. As described in Applicant's specification, this is beneficial in that it eliminates the potential for a dead battery if the system is misused or malfunctions. It also clearly reflects the simple, practical nature of Applicant's system.

Further, amended claims 35 and 45 specify that the thermally-actuated bypass system is incorporated into the heat exchanger, and that the claimed thermal actuator is positioned within the heat exchanger. In the outstanding Office Action, the thermostatic valve 102 of the vehicle engine cooling system in Richman is characterized as being the claimed thermal actuator. Applicant respectfully disagrees with this characterization. To further clarify the differences here, however, Applicant is amending claims 35 and 45 to require that the thermally-actuated bypass system be incorporated into the heat exchanger, and that the claimed thermal actuator be positioned within the heat exchanger. The thermostatic valve 102 in Richman is a part of the automobile, not a part of the windshield fluid heater device. The heater device of claims 35 and 45 has this feature internally and is not dependant on the vehicle having one in a configuration that is adaptable to the device.

In view of the foregoing, Applicant submits that amended independent claims 35 and 45 define patentability over the proposed combination of Richman and Jonsson. Dependent claims 36-43 (based on claim 35) and 46-48 (based on claim 45) are, accordingly, believed to be allowable as well.

New independent claim 49 covers a system having only a single fluid flow path extending between the washer fluid reservoir and the claimed nozzle. This claim also requires that the washer fluid heater system be configured to heat washer fluid delivered to the window of the motor vehicle without drawing off battery power from the motor vehicle or otherwise using electricity. Applicant respectfully submits that this claim is allowable for the reasons already explained in connection with these two features.

Applicant is making the present amendments solely to advance prosecution of this application and to obtain allowance at the earliest possible date. Accordingly, no admission may be inferred from these amendments. Applicant expressly reserves the right to pursue the previous claims in the future. Additionally, Applicant submits that the amendments made herein introduce no new matter.

In view of the foregoing, favorable consideration and prompt allowance of the application are respectfully requested. Examiner is invited to telephone the undersigned if Examiner believes it would be useful to advance prosecution. The Commissioner is authorized and requested to charge to Deposit Account No. 061910 any underpayments, overpayments, or additionally required fees.

Respectfully submitted,
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